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Analysis on the Impact of Tax Policy over China's New Energy Industry Development

Bin Xia^a, Yang Li^b

^a*Economic and Faculty of Business Administration Xi'an University of Technology, Xi'an, P.R. China*

^b*Economic and Faculty of Business Administration Xi'an University of Technology, Xi'an, P.R. China*

Abstract

Energy is a kind of resource which can be used directly or offer people what they need by some conversions, the development of energy is the headspring of economic growth. With the development of our national economy, new energy industry has become China's current vigorously the mainstream of development. The analysis on influence of tax policy on the development of national new energy industry is mainly discussed, as well as the alternative analysis on the production output and sales tax aspects in the areas of new energy, and based on this, some tax policy suggestions on how to promote the development of national new energy industry are given finally.

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Keywords: tax policy; new energy industry; policy Suggestions

1. Introduction

The new energy, called reproducible energy, refers to the energy form which is outside each kind of the traditional energy. It refers to the energy that is just started to develop the use or being studied positively, waits for promoting, such as the solar energy, the geothermal energy, the wind energy, the sea energy, the biomass energy and the nuclear energy and so on. It has lots of forms, but all these forms directly or indirectly comes from the heat energy which produces in solar or the earth interior deep place, including the solar energy, the wind energy, the biomass energy, the geothermal energy, the nuclear energy, the hydro energy, the sea energy and the energy which is produced by the biological fuel and the hydrogen grows by the renewable energy. Our country is the biggest developing country in the world, as a result of our country's large population, the base is infirm, and speeds up the step which urgently needed develops and pursues, massive energy are needed to consume during the development, so the energy consumption rises suddenly in recent years. Our country is the second big energy-consumption country

after the US, energy supply in our country is intense overall, especially the electric power and the liquid fuel. As our country rich in coal, poor in oil and gas, we need to import the energy, which seriously restrict our country's economy and the social development. Some developed countries have massive strategic reserves like coals, petroleum and so on, while our county has not took into consideration in this aspect, our country's energy security still lacked safeguards, which makes it already a bottleneck of the our country's development. The coal, petroleum's massive mining and use not only has huge influence to the environment, moreover the resources are nearly dry up, specially the emission of sulphur dioxide, the carbon monoxide carbon as well as the carbon dioxide is the murderer who makes environment further worse. This warns us must change the structure of energy consumption, therefore new energy and reproducible energy will become the main consumption, the new energy industry has become the new industry which our country develops vigorously in current.

Table.1 each kind of new energy condition and its advantages and disadvantages

Type	Advantages	Disadvantages	Conditions
Solar energy	Has no greenhouse gas emissions; Will not exhaust; High reliability	Low density; Distribution disperses; Its development still needs the government subsidy; High cost	Mainly uses in Concentrated Solar Power system (CSP) to generate electricity, the solar-powered water heater and the photovoltaic power generation.
Wind energy	Large amount of Storage ; Distributed widespread	Low density\the wind speed unstable\big regional discrepancy \the incorporation difficulty is big	Mainly uses in generating electricity
Nuclear energy	Small volume; Big energy; Stable generating cost	Enormous accident risk \ unable operation and use in wide range place	Mainly uses in generating electricity and the military
Biomass energy and organic waste gas	Provides the low-sulfur fuel; Can reduce environmental pollution; Has few technical difficult problem	Organic matter ability somewhat low\big influence by the crops and the region	Mainly uses in generating electricity, heating and the production of liquid fuel

2. New energy tax policy

In order to encourage to develop the new energy industry, From the promulgation and implementation of "Renewable energy Law" in 2006 until now, a series of tax favorable policies which has advantages to the better and quicker development of new energy industry have been promulgated one after another, which reflects that our state think much of the development of the new energy industry. For example in value added tax aspect, the state implements the policy that sends back fifty percent of whole tax after expropriation it, the value added taxes are from some areas such as steam, activated charcoal, white carbon black, lactic acid, calcium lactate, methane produced in the material of abandoned lees and wine-making water in the pot bottom (the ratio of the abandoned lees and wine-making water in the pot bottom to the total material can be no less than 80%), such as electric power and thermal energy in the fuel of gangue, coal sludge, bone coal, oil shale(the ratio of gangue, coal sludge, bone coal, oil shale to the electricity generation fuel can be no less than 60%), and the self-produced goods that using wind power produces electric power. In the aspect of enterprise income tax, for the new technology enterprises which

need big support from the state, the enterprise income tax will be expropriated in 15% tax rate; for the policy-type relocation income from the enterprises, the enterprise income tax will be deal as follow: in the five years from the second year when the enterprises program to relocation, it will temporarily not take account of the tax in current year that comes from the relocation income, for the enterprises who accomplish the relocation in five years, after deducting the relevant cost expense of the relocation income by the rules, the rest will be merged into the tax the relocation enterprises responsible to pay that year. Then the enterprise income tax should be paid. In business tax aspect, it will not expropriate the business tax for those enterprises which are new energy enterprises, become a shareholder in the form of intangible asset and real estate investment, and accept capital profit assignment and undertake the investment risk with the investor together; also the stockholder's rights transfer will not bring business tax; A series of preferential policy are put forward to support the development of the new energy industry, which will not expropriate business tax from technology corporations those conform to the condition, like the income comes from the hatchibator hiring the location, the house to the hatching enterprise as well as providing the hatching service. Partial enterprises have had a good development under the support of this tax preferential policy. For example, in order to realize the sustainable development, Anhui Province takes the new energy one of key cultivation new rising industries, until the year 2009, it had already initially formed five main gather areas including Hefei, Wuhu, Bengbu, Anking and Chuzhou. The tax policy in the hatching, cultivates the new energy industry aspect has outstanding function. Depends on the resources superiority, Heilongjiang Province Yinchuan city developed the wind electricity project that supported by country industrial policy, introducing fund 0.65 billion Yuan constructed two wind electric factories in Ma'anshan and Wuhuadingzi mountain in 2009, with which total installed capacity 69.7MW. The Ma'anshan wind electricity factory project costs 0.2 billion investment totally, installs 24 wind generator set, with total installed capacity 20.4MW; Wuhuadingzi mountain electricity factory project costs 0.45 billion investment totally, installs 58 wind generator set, with total installed capacity 49.3MW. Both two factories have already accomplished the project research and road building design, and the road building also has been completed at the beginning of this year.

3. Analysis on the influence of tax policy on the development of new energy industry

3.1 Influence on produce procedure of the new energy

There are various preferential policy that the state provide to the new energy enterprise in recent years, for the influence on produce procedure of the new energy, we take an automobile manufacturing firm as the example, suppose it is in the perfect competitive market, we explain the influence by a Short-term condition balanced chart that before and after the preferential policy, shown in chart 1, through this chart obviously the varied conditions of the automobile product quantity before and after the tax preferential policy are presented.

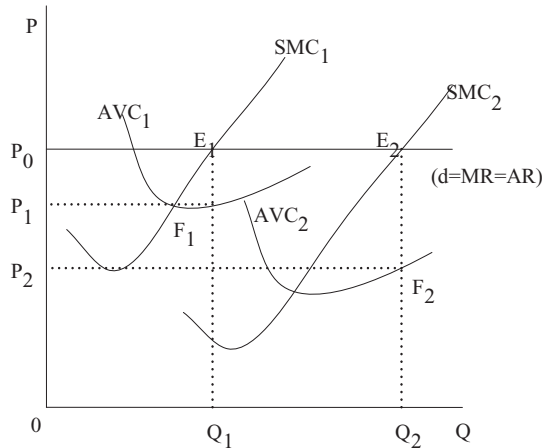


Fig.1 Short-term balanced chart

In the chart 1, abscissa and y-coordinate separately on behalf of output and price, expressed with Q and P , P_0 is the market price of the automobile manufacturing firm's product, moreover it is the product's market demand line 'd' as the firm is in the perfect competitive market, curve SMC_1 and AVC_1 are marginal cost curve and average variable cost curve after the preferential policy separately. According to principle of economics, enterprises in order to realize the profit maximization in competitive market must let $SMC=MR$, namely the marginal cost is equal to the marginal revenue. As we know in the condition of perfect competitive market, the product market price, the average income and the marginal revenue three are equal, that is:

$$P_0=d=AR=MR. \quad (1)$$

Therefore the product quantity of the automobile manufacturing firm when taxation is according to the product quantity Q_1 corresponds to intersection of curve SMC_1 and the P_0 point. Here the enterprise's super-normal profit:

$$S_1=P_0 \cdot Q_1 - P_1 \cdot Q_1 = P_0 E_1 F_1 P_1. \quad (2)$$

When the enterprise enjoys the tax preference, enterprise's marginal cost curve and average variable cost curve moves toward under right, becoming curve SMC_2 and ACV_2 , suppose this time the manufacturing firm product's market price maintains invariable, the chart shows that the firm's product quantity becomes to Q_2 corresponds to intersection of curve SMC_2 and the curve AVC , obviously $Q_2 > Q_1$, super-normal profit:

$$S_2=P_0 \cdot Q_2 - P_2 \cdot Q_2 = P_0 E_2 F_2 P_2. \quad (3)$$

Besides $S_2 > S_1$, it indicates that under the tax preference, The cost of the enterprise's product will drop, therefore the enterprise's super-normal profit increases, to make the enterprise's profit maximization, product quantity will accordingly increase. If looking from the entire automobile manufacture industry, as a result of this time market exists super-normal profit, it will attract more investors to carry on the investment to this industry, and the scale of the industry will expand until this industry realizes long-term balanced. Hence the state promulgating related tax policy regarding promotes the new energy enterprise's

development, like reducing the increment duty tax rate while sales the product or importing equipment produces the new energy product, reduces the new energy product cost, which makes the manufacturer obtain super-normal profit in a short time, and attracts more investors to the new energy product.

3.2 Influence on consume procedure of the new energy

In order to promote the development of new energy industry, the policy which the state promulgates the implements influences on each procedure during the product manufacture, the influence on consume procedure is some preferential policy that the government provides when selling new energy products, for instance, cutting or freeing the tax to the new energy equipment, compares with some non-energy equipment, thanks to the preferential policy, the cost of new energy equipment will fall, leading to a small amount of the high price non-energy equipment, increasing the buy of new energy equipment when consume. It brings the substitution effect of the energy consumable, shown in fig 2.

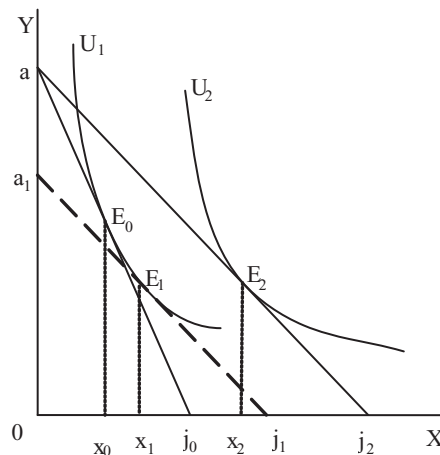


Fig.2 substitution effect in consume

As what is shown in the picture, suppose consumer's income is certain, and only can buy new energy equipment and non-energy equipment, abscissa X and y-coordinate Y separately on behalf of new energy equipment and non-energy equipment, curve j is consumer's budget constraint line, curve U_1 is indifference curve before enjoys the tax policy, at the tangential point E_0 that corresponds to the indifference curve U_1 and budget constraint line j, the consumer issues effectiveness maximization in certain budget situation. After the consumer enjoys correlative tax policy, quantity of available consumption increases due to the cutting and freeing tax policy, budget constraint line becomes to j_2 , at the tangential point that corresponds to the new budget constraint line and the indifference curve U_2 , the amount is right just the optimal purchase pattern after enjoying the tax policy. Of course, in order to maintain under the identical utility level, new budget constraint line's parallel j_1 is drawn, this time at the tangential point E_1 that corresponds to j_1 and indifference curve U_1 , related purchase pattern under identical effectiveness, is the optimal purchase pattern after the new energy equipment employing the preferential tax policy. The substitution effect is: $x_1 - x_0$.

As we all know, the demand of the consumer is another important part in influencing the producer's decision. If consumers choose the new energy equipment that has employed preferential policy, then the producer will carry on selective manufacture corresponding to the demand of the consumer. So the

government policy also influences the consumer's requirements, actually also indirectly influences the enterprise's product structure.

4. Tax policy suggestions on prompting new energy industry's development

4.1 Consumption on the existing categories of tax

① consummate the value added tax

Value added tax is a kind of commodity turnover tax that expropriated according to the value added during the goods turnover process, which execute tax excluded in price, that is to say it is afforded by the consumer. Its preferential policy can bring some influences on the new energy products, but in short time it will not affect the leading aspect of the product price and the consumer's demands remarkably. For the consummation on the value added tax, it can be deployed in two aspects hereinafter. First, expand the expropriation scale of the value added tax's transition, compares with the conventional energy source, the fund crowded characteristic of the new energy determines the high investment cost of the new energy permanent assets, while it rules on permanent assets in our state value added tax law that: when taxpayer pay for the value added tax, it won't be buckled that the input value added tax when buying the permanent assets, as a result, the cost from the new energy products is higher, consumers will consider the funds problems, which cause influence on the sale of products. So we should expand the expropriation scale of the value added tax's transition, for those equipments which conforms to the national new energy standard, purchased by enterprises, may lump-sum buckled the tax when buying the goods. Secondly, decrease the value added tax rate for those new energy enterprises. In our county it has some preferential policy for new energy enterprises, but still cannot prompt its development furthermore. The state may provide corresponding industry some preference in certain time.

② consummate the income tax

Speaking of the income tax comes from the high and new technology, its development tallies with the national industrial development direction, the state has had already some areas to implement the income tax preferential benefit to the new energy at present, but is not obvious in the measure, therefore in income tax aspect may adopt the following several policies: one is enlarging the buckled proportion before some production equipment's tax; another is accelerating the depreciation of the new energy equipment according to industry characteristic of new energy's dense technology and the characteristic of the investment recoupment's long period ; last is reducing the income tax current year for the new energy equipment in certain specified amount.

③ consummate the tariff

The development and use of new energy in our county are later than those developed counties, many production technologies could not have achieved the standard, hence, needs import from foreign county, the tariff increases the cost of domestic firms. It can be adjusted in two aspects for tariff, one is export tax, for some new energy equipment export county we should provide certain tax revenue support, raise the drawback proportion of the export tax, cancel the drawback policy to those products that energy consumption and the pollution are serious. Another is import tax, for the import energy conservation equipments that technology and manufacture level our county cannot achieve, we may cut the tax rate or free the tax.

4.2 Formulate new taxes

① Start to expropriate for environment tax

Environmental taxes also called ecological taxation, is an economic means, which puts the social cost of the environmental pollution and ecological destruction internalized into the production cost and the market price, again through market mechanism to distribution of environmental resources. it should take into account firstly the behavior of environmental pollution which easy to imposed that levy environmental taxes does, such as: fuel and coal, fertilizer, pesticide, battery, sewage, lubricant, life waste and so on, then, we gradually to enact eco-tax-law based on the noise which is difficult to imposed, irradiation, special gas, such as establish water pollution tax, solid pollution tax, noise tax, sulfur dioxide tax etc. For carrying out environmental taxes, it will increase the production costs of related enterprises; can stimulate them to improve their production technology. Using the cleaning equipment, it will reduce pollution of the environment, to a certain extent, also to promote the large-scale development of new energy industry.

②Start to expropriate for carbon tax

Carbon tax is levied for the tax carbon dioxide emissions. It for the purpose of environmental protection, hopes to cut carbon dioxide emissions to slow global warming. It should become a tool to promote the energy conservation and emission, carbon tax is according to the proportion of carbon, which on coal and oil downstream of the gasoline, aviation fuel, natural gas and other fossil fuel products, to achieve a reduction in carbon dioxide emissions from fossil fuel consumption. Start to expropriate for carbon tax would not only affect carbon dioxide emissions, but also firms and households will have a major impact, also the competitiveness of enterprises and individuals has important implications. Therefore, before the introduction of carbon taxes, the rates of tax should not be higher, enterprises and individuals should be adopted different countermeasures. We can give some preferential policies in the implementation of carbon tax to take care of energy-intensive enterprises. To encourage clean energy consumption and technological progress, we can also offer certain preferential tax if the emissions of carbon dioxide below the standards required by the government even can realize the energy consumption of the yearly emissions.

4.3Use tax policy reverse incentive

In recent years, our country introduced a number of promoting the development of new energy industry tax policy is mostly from positive incentives. For example, for the enterprises of the new energy consumption tax, income tax and other tax benefits. However, little or no incentive from the reverse side of the introduction of the policy .This, we can introduce some negative incentives. For example, for the product of an enterprise have a significant impact on social environment but still do not adopt advanced technology about energy conservation to change the current production status of enterprise, we can execute heavy taxation. The enterprises, which do not use new energy equipments, we can increase the taxes to stimulate the elimination of old equipment, introduction of new equipment.

5. Summary

New energy is the current hot spot of society, the new energy industry in China is currently the target to develop new energy sources. So in recent years, the government promulgated a number of fiscal and tax policies to support and promote the development of new energy industries. This article analyzed the effects on the development of new energy industries mainly in the aspect of tax, according to the process of energy production, analyzed the influence of the tax output in the tax aspects of reproduction and the consumption substitution effect in the sales process, then base on this, proposed several policy suggestions to promote China's new energy industry development, including the improvement of existing taxes, such as the VAT, income tax and tariff; formulating new taxes, such as the introduction of

environmental taxes and carbon taxes; and using tax policy in reverse. What the paper has done is to get a better development of the new energy industry.

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